

CLAIM AMENDMENTS

1 1. (Currently Amended) A method for automatically generating a description of a data
2 exchange format based on computer program source code expressed in a source language, the
3 method comprising the computer-implemented steps of:

4 receiving, from a source code file, comment data including first data indicating a
5 parameter of the data exchange format, wherein the comment data is ignored
6 by a source code processor of the source language;

7 receiving from the source code file second data, associated with the comment data,
8 indicating a statement that defines a class of data objects in the source
9 language;

10 wherein the data exchange format ~~expresses the~~ defines, using symbolic tags, a
11 hierarchical structure of data that is exported from, and imported to, data
12 objects of the class of data objects; ~~and~~

13 automatically generating, based on the first data and the second data, third data that
14 describes the data exchange format, wherein the third data comprises
15 instructions defining a mapping between attributes of the class of data objects
16 and elements of the data exchange format; and

17 generating a marshalling module to convert a data object of the class of data objects
18 into a data item of the data exchange format as described by the third data.

1 2. (Currently Amended) A method as recited in Claim 1, ~~further comprising generating,~~
2 wherein generating the marshalling module is based on the first data and the second data, ~~a~~
3 ~~module to convert a data object of the class of data objects into a data item of the data~~
4 ~~exchange format as described by the third data.~~

1 3. (Currently Amended) A method as recited in Claim 1, ~~further comprising generating,~~
2 wherein generating the marshalling module is based on the third data, ~~a module to convert a~~
3 ~~data object of the class of data objects into a data item of the data exchange format as~~
4 ~~described by the third data.~~

1 4. (Currently Amended) A method as recited in Claim 1, further comprising generating,
2 based on the first data and the second data, a de-marshalling module to derive [[a]] the data
3 object of the class of data objects from [[a]] the data item of the data exchange format as
4 described by the third data.

1 5. (Currently Amended) A method as recited in Claim 1, further comprising generating,
2 based on the third data, a de-marshalling module to derive [[a]] the data object of the class of
3 data objects from [[a]] the data item of the data exchange format as described by the third
4 data.

1 6. (Original) A method as recited in Claim 1, wherein the third data is formatted according
2 to a database query language.

1 7. (Original) A method as recited in Claim 1, wherein the third data is formatted according
2 to a symbolic markup language.

1 8. (Original) A method as recited in Claim 1, wherein the third data is formatted according
2 to extensible markup language (XML).

1 9. (Original) A method as recited in Claim 1, wherein the third data comprises one or more
2 statements in an XML schema document.

1 10. (Original) A method as recited in Claim 1, wherein the third data is one or more
2 statements in an XML document type definition (DTD) document.

1 11. (Original) A method as recited in Claim 1, wherein the third data is one or more
2 statements in an XML document type definition (DTD) document, and wherein the
3 parameter is at least one of a root element associated with an entire DTD document, an
4 element and an attribute of an element.

1 12. (Original) A method as recited in Claim 1, wherein the third data is one or more
2 statements in an XML document type definition (DTD) document, and wherein the first data
3 includes one or more properties of the parameter.

1 13. (Previously Presented) A method as recited in Claim 1, wherein the source language is
2 JAVA.

1 14. (Previously Presented) A method as recited in Claim 1, wherein the source language is
2 JAVA, and wherein the first data includes a tag for an automated JAVA documentation
3 system.

1 15. (Previously Presented) A method as recited in Claim 1, wherein the source language is
2 JAVA, wherein the first data includes a tag for an automated JAVA documentation system,
3 and wherein the tag is a user-defined tag for the JAVA documentation system.

1 16. (Previously Presented) A method as recited in Claim 1, wherein the source language is
2 JAVA, wherein the first data includes a tag for an automated JAVA documentation system,
3 wherein the tag is a user-defined tag for the JAVA documentation system, and wherein said
4 step of generating the third data is performed by a user-defined routine invoked by the
5 automated JAVA documentation system in response to the tag.

1 17. (Canceled)

1 18. (Canceled)

1 19. (Canceled)

1 20. (Canceled)

1 21. (Currently Amended) A computer-readable medium carrying one or more sequences
2 of instructions for binding a data exchange format with an application having source code in
3 a particular language, which instructions, when executed by one or more processors, cause
4 the one or more processors to carry out the steps of:

5 receiving, from a particular file that includes the source code, comment data including
6 first data indicating a parameter of the data exchange format, wherein the
7 comment data is ignored by a source code processor of the particular
8 language;

9 receiving from the particular file second data, associated with the comment data,
10 indicating a statement that defines a class of data objects in the particular
11 language;

12 wherein the data exchange format ~~expresses the~~ defines, using symbolic tags, a
13 hierarchical structure of data that is exported from, and imported to, data
14 objects of the class of data objects; ~~and~~

15 generating, based on the first data and second data, third data for configuring the data
16 exchange format, wherein the third data comprises instructions defining a
17 mapping between attributes of the class of data objects and elements of the
18 data exchange format; and

19 generating a marshalling module to convert a data object of the class of data objects
20 into a data item of the data exchange format as described by the third data.

1 22. (Currently Amended) An apparatus for binding a data exchange format with an
2 application having source code in a particular language, comprising:

3 means for receiving, from a particular file that includes the source code, comment
4 data including first data indicating a parameter of the data exchange format,
5 wherein the comment data is ignored by a source code processor of the
6 particular language;

7 means for receiving from the particular file second data, associated with the comment
8 data, indicating a statement that defines a class of data objects in the particular
9 language;

10 wherein the data exchange format ~~expresses the~~ defines, using symbolic tags, a
11 hierarchical structure of data that is exported from, and imported to, data
12 objects of the class of data objects; ~~and~~
13 means for generating, based on the first data and second data, third data for
14 configuring the data exchange format, wherein the third data comprises
15 instructions defining a mapping between attributes of the class of data objects
16 and elements of the data exchange format; and
17 generating a marshalling module to convert a data object of the class of data objects
18 into a data item of the data exchange format as described by the third data.

1 23. (Currently Amended) An apparatus for binding a data exchange format with an
2 application having source code in a particular language, comprising:
3 a processor;
4 one or more stored sequences of instructions which, when executed by the processor,
5 cause the processor to carry out the steps of:
6 receiving, from a particular file that includes the source code, comment data
7 including first data indicating a parameter of a data exchange format,
8 wherein the comment data is ignored by a source code processor of the
9 particular language;
10 receiving from the particular file second data, associated with the comment
11 data, indicating a statement that defines a class of data objects in the
12 particular language;
13 wherein the data exchange format ~~expresses the~~ defines, using symbolic tags,
14 a hierarchical structure of data that is exported from, and imported to,
15 data objects of the class of data objects; ~~and~~
16 generating, based on the first data and second data, third data for configuring
17 the data exchange format, wherein the third data comprises
18 instructions defining a mapping between attributes of the class of data
19 objects and elements of the data exchange format; and

20 generating a marshalling module to convert a data object of the class of data
21 objects into a data item of the data exchange format as described by
22 the third data.

1 24. (Currently Amended) A method for automatically generating a description of a data
2 exchange format based on a JAVA source code of an application, the method comprising the
3 computer-implemented steps of:

4 receiving, from a JAVA source code file, comment data that comprises one or more
5 tags of the data exchange format and one or more parameters that are
6 associated with the one or more tags, wherein the comment data is ignored by
7 a source code processor of the JAVA language;

8 receiving, from the JAVA source code file, one or more statements that define a class
9 of data objects in the JAVA language, wherein the class of data objects is
10 associated with the comment data;

11 wherein the data exchange format expresses, in eXtensible Markup Language (XML),
12 the structure of data that is exported from, and imported to, data objects of the
13 class of data objects; and

14 based on the one or more tags, the one or more parameters, and the one or more
15 statements, a JAVADOC documentation system generating an XML
16 Document Type Definition (DTD) document that describes the data exchange
17 format, wherein the XML DTD document comprises instructions defining a
18 mapping between attributes of the class of data objects and elements of the
19 data exchange format;

20 based on the one or more tags, the one or more parameters, and the one or more
21 statements, generating a marshalling module for converting a data object of
22 the class of data objects into a data item of the data exchange format as
23 described by the XML DTD document; and

24 building an executable version of the application based at least on the JAVA source
25 code and the marshalling module.

1 25. (Previously Presented) A method as recited in Claim 24, wherein:

2 the one or more tags are user-defined JAVADOC tags; and
3 each of the one or more parameters is any one of a root XML element associated with
4 the entire XML DTD document, an XML element of the data exchange
5 formal, and an attribute of an XML element of the data exchange format.

1 26. (Canceled)

1 27. (Currently Amended) A method as recited in Claim 24, further comprising:
2 based on the one or more tags, the one or more parameters, and the one or more
3 statements, generating a ~~JAVADOC doclet~~ de-marshalling module for
4 deriving ~~[[a]]~~ the data object of the class of data objects from ~~[[a]]~~ the data
5 item of the data exchange format as described by the XML DTD document;
6 and
7 wherein building ~~an~~ the executable version of the application is further based ~~at least~~
8 ~~on the JAVA source code and the JAVADOC doclet~~ on the de-marshalling
9 module.